



POLICY AND PROCEDURE STATEMENT BRT – 2.4.0 Maintenance

Purpose: This policy and procedure outlines the documentation requirements and maintenance procedures for the Intoxilyzer 8000 (I-8000) as deployed by BOT. These procedures incorporate the preprogrammed I-8000 bench check procedure and outline various ancillary procedures and documentation requirements.

Effective Date: September 11th 2021

Superseded Policy: BRT 2.3.0

References: 47 O.S. §759, OAC 40:1-1-3, OAC 40:30-1-3, OAC 40:25-1-3, OAC 40:25-1-2.1

Related Forms: BOT Form BRT 4.0, BOT Form BRT 5.0, BOT Form BRT 6.0

Approved By: Joshua Smith

Summary of effective changes: Incorporation of rule changes effective September 11, 2021. Removed antiquated Modem Field Setup instructions.

1. Bench checks: The BOT bench check procedure is performed prior to deploying an I-8000 to the field for use. The bench check procedure is designed to verify the linearity, accuracy, functionality, and precision of the I-8000's factory calibration and procedure. BOT does not currently have the capability to adjust, manipulate, or otherwise change the factory calibration for the I-8000. Currently, BOT personnel are not authorized to adjust the calibration of the I-8000. Performing a remote calibration check and enabling an instrument in the field is not an adjustment to the calibration.
2. Preliminary Matters
 - a. Reference solutions and dry gas canisters in accordance with OAC 40:25-1-2.1 and OAC 40:25-1-3:

As soon as practicable after receipt of shipments of reference solutions and dry gas canisters, the receipt date will be noted on the manufacturer's Certificate of Analysis. The target value, expiration date, lot number, and cylinder number (if applicable) will be entered into the agency's asset management system. The manufacturer's Certificate of Analysis will be annotated to reflect entry of this information in the agency's asset management system.

Each new lot of reference solution used in the bench check procedure will be subjected to a battery of 10 stability tests on an I-8000 specifically designated for this purpose (the Alpha instrument) prior to use. Each dry gas canister will be subjected to a battery of 10 stability tests on the Alpha instrument prior to installation on the I-8000 for use in the field. The printout of these stability and linearity tests are to be affixed to the

manufacturer's certificate of analysis by the technician who performed them and maintained in the documentation of the bench check procedure. The solution used to introduce the acetone and exceed the range of the instrument do not require a stability test.

The following table outlines the required average test results for reference solution lots and dry gas canisters in order for them to be considered acceptable for use. Any reference solution lots or dry gas canisters that fail to meet these specifications will be returned to the manufacturer or used in training. The factors included in the table represent the manufacturer's specifications and OAC 40:25-1-3 dry gas canister rules. When applicable, the Technician should use the normal rules of rounding. (i.e. 0.0775 would round to 0.078)

Control Method	Acceptable Range (Factor)
Dry Gas Canister (.08)	.078 - .082 (\pm .002)
Simulator Solution (.02)	.017 - .023 (\pm .003)
Simulator Solution (.04)	.037 - .043 (\pm .003)
Simulator Solution (.10)	.097 - .103 (\pm .003)
Simulator Solution (.20)	.197 - .203 (\pm .003)

Reference solutions used in the bench check procedure are to be changed at least every 30 days, or prior to their expiration date whichever is sooner. Additionally, any time the technician determines the solutions need changed, the technician is hereby authorized to take such action in accordance with their manufacturer training. The approved breath-alcohol equipment model and serial number as well as the reference solution concentration, lot number, manufacture date, expiration date, and solution commission date are to be recorded onto BOT Form 4.0 - Certificate of Maintenance, Calibration, and Operation. For purposes of this policy, the solution commission date is the date the simulator solution is changed.

b. Equipment/Supplies:

In order to complete the Bench Check Procedure outlined herein, the following equipment and supplies are needed. The work stations with these supplies and equipment are set up, labeled, and maintained by the Breath Alcohol Program Administrator. This list is for reference only.

Quantity	Equipment/Supplies
1	I-8000 to be tested

1	Printer connected to instrument being tested with sufficient paper to print required documentation.
1	Approximately 500 mL of NIST traceable alcohol reference solution (0.02 g/210L) in a breath alcohol simulator appearing on NHTSA's <i>Conforming Products List of Calibrating Units for Breath Alcohol Testers</i> .
1	Approximately 500 mL of NIST traceable alcohol reference solution (0.04 g/210L) in a breath alcohol simulator appearing on NHTSA's <i>Conforming Products List of Calibrating Units for Breath Alcohol Testers</i> .
1	Approximately 500 mL of NIST traceable alcohol reference solution (0.10 g/210L) in a breath alcohol simulator appearing on NHTSA's <i>Conforming Products List of Calibrating Units for Breath Alcohol Testers</i> .
1	Approximately 500 mL of NIST traceable alcohol reference solution (0.20 g/210L) in a breath alcohol simulator appearing on NHTSA's <i>Conforming Products List of Calibrating Units for Breath Alcohol Testers</i> .
1	Approximately 500 mL of alcohol reference solution and approximately .5 mL of acetone in a breath alcohol simulator appearing on NHTSA's <i>Conforming Products List of Calibrating Units for Breath Alcohol Testers</i> .
1	Approximately 500 mL of alcohol reference solution (in excess of .60 g/210L) in a breath alcohol simulator appearing on NHTSA's <i>Conforming Products List of Calibrating Units for Breath Alcohol Testers</i> .
1	Bottle containing approximately 125 mL of .20 alcohol reference solution.
1	Approximately 1 oz. of mouthwash

c. Bench Check Procedure Report:

The conduct and results of each Bench Check Procedure will be documented in a Bench Check Procedure Report. The table below indicates the contents of a completed Bench Check Procedure Report.

Document Title/Form No.	Description
Service Overview	An index of the documents contained in the Bench Check Procedure Report. Also contains general information including date, time, instrument information, and Technician information.
BOT Certificate of Maintenance, Calibration, and Operation (BOT Form 4.0)	BOT Certificate of Maintenance, Calibration, and Operation (BOT Form 4.0) completed contemporaneously with the performance of the Bench Check Procedure.
Bench Check Report	The Bench Check Report printed from the I-8000.
Manufacturer documentation	Any documentation received as a result of a repair from the manufacturer (if applicable)

Certificates of Analysis (Reference Solution)	A manufacturer's certificate of analysis for the reference solutions used during the bench check. A certificate of analysis should be included for the .02, .04, .10, and .20 reference solutions used.
BOT Certificate of Analysis (BOT Form BRT 6.0)	The BOT Certificate of Analysis, BOT Form BRT 6.0 will be completed and signed by the technician and affixed to the manufacturer's Certificate of Analysis for bench check reference solutions.
Certificate of Analysis (Dry Gas Canister)	A copy of the manufacturer certificate of analysis for the dry gas canister installed for field use at the time of the bench check containing affixed annotated information in accordance w/ this policy.
BOT Certificate of Analysis (BOT Form BRT 5.0)	The BOT Certificate of Analysis, BOT Form BRT 5.0 will be completed and signed by the technician and affixed to the manufacturer's Certificate of Analysis for dry gas canisters.
Mock Subject Test	The mock subject test performed at the conclusion of the Bench Check Procedure.
Informational Messages	Any printed informational messages produced by the I-8000 during the Bench Check Procedure.

3. Bench Check Procedure

- a. Pre-Bench Check activities: The following table outlines the steps to prepare for the Bench Check Procedure.

Step	Description
Work Order Review	<ul style="list-style-type: none"> ○ Review the work order created upon receipt of the instrument at the Board's offices, if applicable, prior to the bench check.
Maintenance file review	<ul style="list-style-type: none"> ○ Conduct a review of the maintenance file of the subject instrument. The purpose of the review is to identify any recurring issues with the subject instrument, audit previous maintenance records, and ensure the file contains all necessary user agency and contact information.
Simulator set up	<ul style="list-style-type: none"> ○ If they are not already powered on, turn on each simulator to be used during the Bench Check Procedure and allow them to warm up for at least 30 minutes.

	<ul style="list-style-type: none"> ○ Verify the commission dates of the solutions in the simulators are within the last 30 days. ○ Verify the expiration date of the solutions in the simulators has not past. ○ Verify the internal thermometer on the simulator reads 34° C +/- .2° C.
Instrument set up (Bench Check)	<ul style="list-style-type: none"> ○ Move the subject instrument to the work station and plug it into the appropriate uninterruptable power supply. Power on the instrument and allow it to warm up. ○ Hit ESC, ESC. ○ Choose “S – Setup”. “MENU OPTIONS: ELPGTSVZMN” should appear. ○ “E” – Verify the correct date and time are entered. ○ “L” – Verify the location reflects the serial number of the unit being bench checked. ○ “P” – Set print count to 1 ○ “G” – Set for BENCH CHECK <ul style="list-style-type: none"> ○ “Display volume” – Y ○ “Display third digit” – Y ○ “Display Prelim Rslt” – Y ○ “Disable on Memfull” – Y ○ “Modem or Net” – M ○ “Phone #” – 7435 ○ “Max Retries” – 1 ○ “Retry wait (mins)” – 1 ○ “Enable Data Stream” – N ○ “T” – Configure Start Test <ul style="list-style-type: none"> ○ “Data Entry Mode” – D ○ “Start Test Seq” – ABAWABACA ○ “S” – Configure Standard <ul style="list-style-type: none"> ○ “Select Std (D/W/I)” – W ○ “Standard Value” – 0.### (Simulator solution value) ○ “Standard Exp” – Use date on bottle ○ “Sim. Model” – Enter Simulator Model ○ “Sim. Serial #” – Enter Simulator Serial Number ○ “Date of Maint” – Enter Current Date

	<ul style="list-style-type: none"> ○ “Specialist” – Enter "Board of Tests" ○ “Permit Number” – Enter Permit number ○ From “SETUP MENU OPTIONS – ELPGTSVZMN” hit “ESC” ○ From “MENU OPTIONS – DMST” <ul style="list-style-type: none"> ○ “M” – Maintenance Options – DCB ○ “B” – Bench Check
--	--

b. Bench Check: The following table outlines the steps of the Bench Check. These steps are programmed into the instrument. The Technician takes specific actions in response to the instructions displayed by the instrument.

Step (Displayed Instructions)	Description
Prepare .02 solution then press any key.	○ Prepare to attach the previously prepared simulator containing .02 solution.
ABA sequence	○ When prompted to provide a breath sample connect simulator containing .02 solution to the breath tube and blow.
ABA sequence	○ When prompted to provide a breath sample connect simulator containing .02 solution to the breath tube and blow.
Install .02 Solution	○ Connect simulator containing .02 solution to the “calibration inlet”
ACA sequence	
Prepare .04 solution then press any key.	○ Prepare to attach the previously prepared simulator containing .04 solution.
ABA sequence	○ When prompted to provide a breath sample connect simulator containing .04 solution to the breath tube and blow.
ABA sequence	○ When prompted to provide a breath sample connect simulator containing .04 solution to the breath tube and blow.
Install .04 solution	○ Connect simulator containing .04 solution to the “calibration inlet”.
ACA sequence	
Prepare .10 solution then press any key	○ Prepare to attach the previously prepared simulator containing .10 solution.

ABA sequence	<ul style="list-style-type: none"> ○ When prompted to provide a breath sample connect simulator containing .10 solution to the breath tube and blow.
ABA sequence	<ul style="list-style-type: none"> ○ When prompted to provide a breath sample connect simulator containing .10 solution to the breath tube and blow.
Install .10 solution	<ul style="list-style-type: none"> ○ Connect simulator containing .10 solution to the “calibration inlet”.
ACA sequence	
Prepare .20 solution then press any key	<ul style="list-style-type: none"> ○ Prepare to attach the previously prepared simulator containing .20 solution.
ABA sequence	<ul style="list-style-type: none"> ○ When prompted to provide a breath sample connect simulator containing .20 solution to the breath tube and blow.
ABA sequence	<ul style="list-style-type: none"> ○ When prompted to provide a breath sample connect simulator containing .20 solution to the breath tube and blow.
Install .20 solution	<ul style="list-style-type: none"> ○ Connect simulator containing .20 solution to the “calibration inlet”.
ACA sequence	
IF ANY OF THE ABOVE TESTS FAIL THE 0.01 TOLERANCE THE INSTRUMENT WILL PROMPT THE TECHNICIAN TO RE-RUN THE TEST. THE TEST SHOULD BE RE-RUN AT LEAST ONE TIME PRIOR TO MOVING ON.	
Mouth alcohol test	<ul style="list-style-type: none"> ○ Press “Enter” to begin test. ○ Rinse with mouth wash. ○ Allow to dissipate between 10-30 seconds. ○ Provide breath sample when prompted.
RFI test	<ul style="list-style-type: none"> ○ Press “Enter” to begin test. ○ Key radio or make call to cell phone in vicinity of the instrument.
Interferent detect	<ul style="list-style-type: none"> ○ Prepare to attach the simulator containing acetone to the breath hose. ○ Press “Enter” to begin test. ○ Connect simulator containing acetone to breath hose and provide a breath sample when prompted.
Abort test	<ul style="list-style-type: none"> ○ Press “Enter” to begin test. ○ Push start button a second time during procedure.
Improper Sample Test	<ul style="list-style-type: none"> ○ Press “Enter” to begin test.

	<ul style="list-style-type: none"> ○ Blow into breath tube during air blank.
No Sample Given test	<ul style="list-style-type: none"> ○ Press "Enter" to begin test. ○ Allow the 3 minute time limit to expire without providing a breath sample.
Insufficient Sample Test	<ul style="list-style-type: none"> ○ Press "Enter" to begin test. ○ Provide a minimal 1-2 second breath sample. ○ Allow time to expire.
Air Blank Contaminated Test	<ul style="list-style-type: none"> ○ Press "Enter" to begin test. ○ Place breath hose just in the neck of the bottle containing approximately 125 mL of .20 reference solution.
Range Exceeded Test	<ul style="list-style-type: none"> ○ Prepare to attach the simulator containing 0.60 or greater solution to the breath hose. ○ Press "Enter" to begin test. ○ Connect simulator containing 0.60 or greater solution to the breath hose and provide a breath sample when prompted.
THE INSTRUMENT SHOULD PRINT THE RESULTS OF THE BENCH CHECK PROCEDURE	

c. Post Bench Check Procedures: The following table outlines the steps taken to conclude the Bench Check Procedure, document the results of the procedure, and prepare the instrument for field use.

Step	Description
Instrument Set Up (Field Use)	"SETUP OPTIONS" – Select "G" for "GENERAL SETUP"
	<ul style="list-style-type: none"> ○ "G" – "GENERAL SETUP" – Set for "FIELD USE" <ul style="list-style-type: none"> ○ Display Volume – Y ○ Display Third Digit – N ○ Display Prelim Rslt – N ○ Disable on Memfull – Y ○ Modem or Net – N ○ Enter IP Address – (<u>PROTECTED FOR SECURITY</u>) ○ Enter Port Number – (<u>PROTECTED FOR SECURITY</u>) ○ Enable Data Stream - N ○ "T" – Configure Start Test <ul style="list-style-type: none"> ○ Data Entry Mode – E ○ Start Test Seq – ABAWABACA ○ "S" – Configure Standard <ul style="list-style-type: none"> ○ Select Std (D/W/I) – D

	<ul style="list-style-type: none"> ○ Please scan cylinder or press enter – Scan the barcode on the cylinder ○ Standard Value – 0.### (Auto populated if the barcode is scanned). ○ Standard Lot# - (Auto populated if the barcode is scanned). ○ Standard Manuf – Enter name of manufacturer ○ Installation Date – Enter Current Date ○ Expiration Date – (Auto populated if the barcode is scanned). ○ Specialist – Enter Board of Tests ○ Permit Number – Enter Permit Number ○ Press ESC to return to MENU OPTIONS – DMST: Select M for MAINTENANCE OPTIONS <ul style="list-style-type: none"> ○ MAINTENANCE OPTIONS – DCB: Select C for CALIBRATION OPTIONS ○ CALIBRATION OPTIONS – GFOI: Select G for TANK SENSOR CAL. ○ Select Y and follow instructions on the display. ○ Install the canister ○ Press ESC to return to MENU OPTIONS – DMST: Select D for DIAGNOSTICS OPTIONS – DBFTPG. ○ Select G for Tank Monitor to check the tank pressure.
Mock Subject Test	<ul style="list-style-type: none"> ○ Run one breath test sequence. The technician is authorized to utilize a simulator with a reference solution to complete the test sequence.
Documentation Review	<p>The Technician should review, sign (or initial as appropriate), and organize all documentation related to the Bench Check Procedure and route it to the Director who will review, sign, and forward to the records custodian for placement in the agency’s records management system. The records custodian will create an attested duplicate of the original documentation</p>

	for convenient fulfillment of open records requests.
--	--